

What is claimed is:

1. A method of increasing the output horsepower of an induction motor, the method comprising the steps of:
 - providing an induction motor having a predetermined rated operational voltage and frequency, wherein the predetermined rated operational voltage and frequency of the motor provides a predetermined output horsepower;
 - providing a variable speed drive capable of outputting a voltage and frequency greater than the predetermined rated operational voltage and frequency of the motor;
 - connecting the variable speed drive to the induction motor to provide power to the induction motor; and
 - operating the variable speed drive to provide an output voltage and frequency to the induction motor greater than the predetermined rated operational voltage and frequency of the induction motor, wherein powering the induction motor at an output voltage and frequency greater than the predetermined rated operational voltage and frequency results in the motor generating an output horsepower greater than the predetermined output horsepower.
2. The method of claim 1 further comprising the step of operating the induction motor in a constant flux mode of operation.
3. The method of claim 1 further comprising the step of boosting the output voltage of the variable speed drive to be at least twice an input voltage to the variable speed drive.
4. The method of claim 3 wherein the predetermined rated operational voltage of the induction motor is substantially equal to the input voltage to the variable speed drive.
5. The method of claim 1 wherein the step of providing an induction motor includes providing a dual voltage motor having a high voltage connection and a low voltage connection.
6. The method of claim 5 wherein the step of connecting the variable speed drive to the induction motor includes connecting the variable speed drive to the low voltage connection of the dual voltage motor.
7. The method of claim 1 wherein the predetermined rated operational voltage of the induction motor is less than an input voltage to the variable speed drive.

8. A system for increasing the output horsepower of a motor, the system comprising:
 - a motor having a predetermined rated operational voltage and frequency, and the motor being configured to generate a predetermined output horsepower in response to the predetermined rated operational voltage and frequency of the motor being input to the motor;
 - a variable speed drive connected to the motor to power the motor, the variable speed drive being configured to provide a variable output voltage and variable output frequency to the motor, the variable output voltage and variable output frequency ranging between an output voltage and output frequency less than the predetermined rated operational voltage and frequency and an output voltage and output frequency greater than the predetermined rated operational voltage and frequency; and
 - wherein operation of the motor at an output voltage and output frequency greater than the predetermined rated operational voltage and frequency results in the motor generating an output horsepower greater than the predetermined output horsepower.
9. The system of claim 8 wherein the variable speed drive is configured to provide an output voltage to the motor greater than an input voltage to the variable speed drive.
10. The system of claim 9 wherein the variable speed drive is configured to provide an output voltage to the motor that is at least twice the input voltage to the variable speed drive.
11. The system of claim 10 wherein the predetermined rated operational voltage of the motor is substantially equal to the input voltage to the variable speed drive.
12. The system of claim 8 wherein the predetermined rated operational voltage of the motor is less than an input voltage to the variable speed drive.
13. The system of claim 8 wherein the motor comprises a dual voltage motor having a high voltage connection and a low voltage connection.
14. The system of claim 13 wherein the variable speed drive is connected to the low voltage connection of the dual voltage motor and can provide an output voltage substantially equal to a voltage corresponding to the high voltage connection.
15. The system of claim 8 wherein the variable speed drive comprises:
 - a converter to convert AC power having a fixed voltage and fixed frequency to DC power;

a DC link to filter and store the DC power from the converter; and
an inverter to convert DC power from the DC link to AC power having a variable voltage and variable frequency, the variable voltage and variable frequency from the inverter being the variable output voltage and variable output frequency of the variable speed drive.

16. The system of claim 15 wherein the converter is configured to provide a voltage to the DC link greater than an input voltage to the variable speed drive.

17. The system of claim 8 wherein the motor is an induction motor.

18. A refrigeration system comprising:

a compressor, a condenser and an evaporator connected in a closed refrigerant circuit;

a motor connected to the compressor to drive the compressor, the motor having a predetermined rated operational voltage and frequency, and the motor being configured to generate a predetermined output horsepower in response to the predetermined rated operational voltage and frequency of the motor being provided to the motor;

a variable speed drive connected to the motor to power the motor, the variable speed drive being configured to provide a variable output voltage and variable output frequency to the motor, the variable output voltage and variable output frequency ranging between an output voltage and output frequency less than the predetermined rated operational voltage and frequency and an output voltage and output frequency greater than the predetermined rated operational voltage and frequency; and

wherein operation of the motor at an output voltage and output frequency greater than the predetermined rated operational voltage and frequency results in the motor generating an output horsepower greater than the predetermined output horsepower.

19. The refrigeration system of claim 18 wherein the variable speed drive is configured to provide an output voltage to the motor greater than an input voltage to the variable speed drive.

20. The refrigeration system of claim 19 wherein the variable speed drive is configured to provide an output voltage to the motor that is at least twice the input voltage to the variable speed drive.
21. The refrigeration system of claim 20 wherein the predetermined rated operational voltage of the motor is substantially equal to the input voltage to the variable speed drive.
22. The refrigeration system of claim 18 wherein the predetermined rated operational voltage of the motor is less than an input voltage to the variable speed drive.
23. The refrigeration system of claim 18 wherein the motor has a stator insulation system rated for 600 VAC.